**Trabajo Práctico N° 5:**

**Modelos para Variables Dependientes Limitadas - Tobit.**

**Ejercicio 1: Variables Censuradas (Modelo Tobit I).**

*El modelo Tobit es relevante cuando la variable dependiente y de una regresión lineal se observa solo en algún intervalo de su soporte, porque, en este caso, los estimadores de MCC no son consistentes.*

**(a)** *Considerar la base “auto.dta”. Estimar el modelo:*

*mpg= + wgt + u,*

*donde wgt= . Luego, estimar el modelo generando una variable censurada suponiendo que no se observan autos con mpg 17. Estimar por MCC y utilizando un modelo Tobit. Comparar.*

OLS:

Source | SS df MS Number of obs = 74

-------------+---------------------------------- F(1, 72) = 134.62

Model | 1591.99024 1 1591.99024 Prob > F = 0.0000

Residual | 851.469221 72 11.8259614 R-squared = 0.6515

-------------+---------------------------------- Adj R-squared = 0.6467

Total | 2443.45946 73 33.4720474 Root MSE = 3.4389

------------------------------------------------------------------------------

mpg | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt | -6.008687 .5178782 -11.60 0.000 -7.041058 -4.976316

\_cons | 39.44028 1.614003 24.44 0.000 36.22283 42.65774

------------------------------------------------------------------------------

OLS (ll(17)):

Source | SS df MS Number of obs = 74

-------------+---------------------------------- F(1, 72) = 95.06

Model | 1138.32073 1 1138.32073 Prob > F = 0.0000

Residual | 862.219806 72 11.9752751 R-squared = 0.5690

-------------+---------------------------------- Adj R-squared = 0.5630

Total | 2000.54054 73 27.4046649 Root MSE = 3.4605

------------------------------------------------------------------------------

mpg\_a | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt | -5.080912 .5211373 -9.75 0.000 -6.11978 -4.042044

\_cons | 37.12539 1.62416 22.86 0.000 33.88769 40.3631

------------------------------------------------------------------------------

Tobit (ll(17)):

Tobit regression Number of obs = 74

Uncensored = 56

Limits: Lower = 17 Left-censored = 18

Upper = +inf Right-censored = 0

LR chi2(1) = 72.85

Prob > chi2 = 0.0000

Log likelihood = -164.25438 Pseudo R2 = 0.1815

------------------------------------------------------------------------------

mpg\_a | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt | -6.87305 .700257 -9.82 0.000 -8.268661 -5.47744

\_cons | 41.49856 2.058384 20.16 0.000 37.3962 45.60091

-------------+----------------------------------------------------------------

var(e.mpg\_a)| 14.78942 2.817609 10.11698 21.61977

------------------------------------------------------------------------------

Tabla comparativa:

------------------------------------------------------------

(1) (2) (3)

OLS OLS ll(17) Tobit ll(17)

------------------------------------------------------------

main

wgt -6.009\*\*\* -5.081\*\*\* -6.873\*\*\*

(0.518) (0.521) (0.700)

\_cons 39.44\*\*\* 37.13\*\*\* 41.50\*\*\*

(1.614) (1.624) (2.058)

------------------------------------------------------------

/

var(e.mpg\_a) 14.79\*\*\*

(2.818)

------------------------------------------------------------

N 74 74 74

R-sq 0.652 0.569

pseudo R-sq 0.182

------------------------------------------------------------

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**(b)** *Repetir el inciso anterior suponiendo que, ahora, no se observan autos con mpg 24.*

OLS (ul(24)):

Source | SS df MS Number of obs = 74

-------------+---------------------------------- F(1, 72) = 186.15

Model | 690.810491 1 690.810491 Prob > F = 0.0000

Residual | 267.189509 72 3.7109654 R-squared = 0.7211

-------------+---------------------------------- Adj R-squared = 0.7172

Total | 958 73 13.1232877 Root MSE = 1.9264

------------------------------------------------------------------------------

mpg\_b | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt | -3.958119 .2901034 -13.64 0.000 -4.536429 -3.379808

\_cons | 31.95138 .9041273 35.34 0.000 30.14903 33.75372

------------------------------------------------------------------------------

Tobit (ul(24)):

Tobit regression Number of obs = 74

Uncensored = 51

Limits: Lower = -inf Left-censored = 0

Upper = 24 Right-censored = 23

LR chi2(1) = 90.72

Prob > chi2 = 0.0000

Log likelihood = -129.8279 Pseudo R2 = 0.2589

------------------------------------------------------------------------------

mpg\_b | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt | -5.080645 .4349309 -11.68 0.000 -5.947461 -4.213829

\_cons | 36.08037 1.432059 25.19 0.000 33.22628 38.93446

-------------+----------------------------------------------------------------

var(e.mpg\_b)| 5.689927 1.166256 3.781783 8.560846

------------------------------------------------------------------------------

Tabla comparativa:

------------------------------------------------------------

(1) (2) (3)

OLS OLS ul(24) Tobit ul(24)

------------------------------------------------------------

main

wgt -6.009\*\*\* -3.958\*\*\* -5.081\*\*\*

(0.518) (0.290) (0.435)

\_cons 39.44\*\*\* 31.95\*\*\* 36.08\*\*\*

(1.614) (0.904) (1.432)

------------------------------------------------------------

/

var(e.mpg\_b) 5.690\*\*\*

(1.166)

------------------------------------------------------------

N 74 74 74

R-sq 0.652 0.721

pseudo R-sq 0.259

------------------------------------------------------------

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**(c)** *¿Cómo se interpretan los coeficientes del modelo? Computar los efectos marginales.*

Los coeficientes estimados miden cómo cambia la variable latente no observada con respecto a los cambios en las variables independientes, *céteris páribus*.

Efectos marginales (condicionales) con censura en Tobit (ll(17)):

Conditional marginal effects Number of obs = 74

Model VCE: OIM

Expression: E(mpg\_a\*|mpg\_a>17), predict(ystar(17,.))

dy/dx wrt: wgt

1.\_at: wgt = 1

2.\_at: wgt = 2

3.\_at: wgt = 3

4.\_at: wgt = 4

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt |

\_at |

1 | -6.873035 1.389235 -4.95 0.000 -9.595886 -4.150183

2 | -6.855268 .7044715 -9.73 0.000 -8.236007 -5.47453

3 | -5.797116 .5880797 -9.86 0.000 -6.949731 -4.644501

4 | -1.499391 .3662326 -4.09 0.000 -2.217194 -.7815884

------------------------------------------------------------------------------

Efectos marginales (condicionales) con truncamiento en Tobit (ll(17)):

Conditional marginal effects Number of obs = 74

Model VCE: OIM

Expression: E(mpg\_a|mpg\_a>17), predict(e(17,.))

dy/dx wrt: wgt

1.\_at: wgt = 1

2.\_at: wgt = 2

3.\_at: wgt = 3

4.\_at: wgt = 4

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt |

\_at |

1 | -6.872705 .700472 -9.81 0.000 -8.245605 -5.499805

2 | -6.718373 .7348761 -9.14 0.000 -8.158703 -5.278042

3 | -4.345679 .4915117 -8.84 0.000 -5.309024 -3.382334

4 | -1.560439 .1287703 -12.12 0.000 -1.812825 -1.308054

------------------------------------------------------------------------------

Efectos marginales (condicionales) con censura en Tobit (ul(24)):

Conditional marginal effects Number of obs = 74

Model VCE: OIM

Expression: E(mpg\_b\*|mpg\_b<24), predict(ystar(.,24))

dy/dx wrt: wgt

1.\_at: wgt = 1

2.\_at: wgt = 2

3.\_at: wgt = 3

4.\_at: wgt = 4

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt |

\_at |

1 | -.0085382 .0114991 -0.74 0.458 -.031076 .0139997

2 | -1.069716 .2842071 -3.76 0.000 -1.626752 -.5126807

3 | -4.610593 .3715716 -12.41 0.000 -5.33886 -3.882326

4 | -5.079249 .4349007 -11.68 0.000 -5.931638 -4.226859

------------------------------------------------------------------------------

Efectos marginales (condicionales) con truncamiento en Tobit (ul(24)):

Conditional marginal effects Number of obs = 74

Model VCE: OIM

Expression: E(mpg\_b|mpg\_b<24), predict(e(.,24))

dy/dx wrt: wgt

1.\_at: wgt = 1

2.\_at: wgt = 2

3.\_at: wgt = 3

4.\_at: wgt = 4

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

wgt |

\_at |

1 | -.3691762 .0534955 -6.90 0.000 -.4740255 -.2643269

2 | -1.13567 .1001953 -11.33 0.000 -1.332049 -.939291

3 | -3.681238 .3548315 -10.37 0.000 -4.376695 -2.985781

4 | -5.06274 .4362475 -11.61 0.000 -5.917769 -4.20771

------------------------------------------------------------------------------

**Ejercicio 2: Variables Censuradas (Modelo Tobit II).**

*El siguiente ejercicio está tomado de Cameron & Trivedi. La variable dependiente para el gasto ambulatorio (ambulatory expenditure, ambexp) y los regresores (age, female, educ, blhisp, totchr, ins) se obtienen de la encuesta Medical Expenditure Panel Survey de 2001.*

**(a)** *Abrir y describir la base “mus16datav2.dta”. ¿Qué se puede decir sobre el cumplimiento de las condiciones que requiere un Tobit?*

Variable | Obs Mean Std. dev. Min Max

-------------+---------------------------------------------------------

ambexp | 3,328 1386.519 2530.406 0 49960

age | 3,328 4.056881 1.121212 2.1 6.4

female | 3,328 .5084135 .5000043 0 1

educ | 3,328 13.40565 2.574199 0 17

blhisp | 3,328 .3085938 .4619824 0 1

totchr | 3,328 .4831731 .7720426 0 5

ins | 3,328 .3650841 .4815261 0 1

ambexp

-------------------------------------------------------------

Percentiles Smallest

1% 22 1

5% 67 2

10% 107 2 Obs 2,802

25% 275 4 Sum of wgt. 2,802

50% 779 Mean 1646.8

Largest Std. dev. 2678.914

75% 1913 28269

90% 3967 30920 Variance 7176579

95% 6027 34964 Skewness 5.799312

99% 12467 49960 Kurtosis 65.81969

Lo que se puede decir sobre el cumplimiento de las condiciones que requiere Tobit es que, en principio, la asimetría y la curtosis no normal (alejadas de 0 y 3, respectivamente) de la variable dependiente *ambexp* podrían deberse a regresores que están sesgados.

Tobit:

Tobit regression Number of obs = 3,328

Uncensored = 2,802

Limits: Lower = 0 Left-censored = 526

Upper = +inf Right-censored = 0

LR chi2(6) = 694.07

Prob > chi2 = 0.0000

Log likelihood = -26359.424 Pseudo R2 = 0.0130

-------------------------------------------------------------------------------

ambexp | Coefficient Std. err. t P>|t| [95% conf. interval]

--------------+----------------------------------------------------------------

age | 314.1479 42.63366 7.37 0.000 230.557 397.7388

female | 684.9918 92.85464 7.38 0.000 502.9337 867.0498

educ | 70.8656 18.57365 3.82 0.000 34.44865 107.2825

blhisp | -530.311 104.2669 -5.09 0.000 -734.7448 -325.8772

totchr | 1244.578 60.51376 20.57 0.000 1125.93 1363.226

ins | -167.4714 96.46088 -1.74 0.083 -356.6002 21.65734

\_cons | -1882.591 317.4305 -5.93 0.000 -2504.971 -1260.212

--------------+----------------------------------------------------------------

var(e.ambexp)| 6635296 179247.7 6292994 6996217

-------------------------------------------------------------------------------

**(b)** *Computar los efectos marginales.*

Efectos marginales (promedio) con censura en Tobit:

Average marginal effects Number of obs = 3,328

Model VCE: OIM

Expression: E(ambexp\*|ambexp>0), predict(ystar(0,.))

dy/dx wrt: age female educ blhisp totchr ins

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

age | 201.4409 27.29283 7.38 0.000 147.9479 254.9338

female | 439.2368 59.32556 7.40 0.000 322.9608 555.5127

educ | 45.4411 11.89795 3.82 0.000 22.12154 68.76066

blhisp | -340.0509 66.77218 -5.09 0.000 -470.922 -209.1799

totchr | 798.06 38.00729 21.00 0.000 723.5671 872.5529

ins | -107.3876 61.86227 -1.74 0.083 -228.6354 13.86024

------------------------------------------------------------------------------

Efectos marginales (promedio) con truncamiento en Tobit:

Average marginal effects Number of obs = 3,328

Model VCE: OIM

Expression: E(ambexp|ambexp>0), predict(e(0,.))

dy/dx wrt: age female educ blhisp totchr ins

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

age | 147.796 20.14716 7.34 0.000 108.3083 187.2838

female | 322.2656 43.7895 7.36 0.000 236.4397 408.0914

educ | 33.33988 8.742173 3.81 0.000 16.20554 50.47422

blhisp | -249.4935 49.12834 -5.08 0.000 -345.7832 -153.2037

totchr | 585.5322 29.01047 20.18 0.000 528.6727 642.3917

ins | -78.78967 45.40264 -1.74 0.083 -167.7772 10.19787

------------------------------------------------------------------------------

Efectos marginales (condicionales) con censura en Tobit:

Conditional marginal effects Number of obs = 3,328

Model VCE: OIM

Expression: E(ambexp\*|ambexp>0), predict(ystar(0,.))

dy/dx wrt: age female educ blhisp totchr ins

At: age = 4.056881 (mean)

female = .5084135 (mean)

educ = 13.40565 (mean)

blhisp = .3085938 (mean)

totchr = .4831731 (mean)

ins = .3650841 (mean)

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

age | 207.526 28.2054 7.36 0.000 152.2444 262.8076

female | 452.5052 61.30341 7.38 0.000 332.3528 572.6577

educ | 46.81378 12.26552 3.82 0.000 22.77381 70.85375

blhisp | -350.3232 68.86825 -5.09 0.000 -485.3025 -215.3439

totchr | 822.1678 40.61039 20.25 0.000 742.5729 901.7627

ins | -110.6315 63.74577 -1.74 0.083 -235.5709 14.30787

------------------------------------------------------------------------------

Efectos marginales (condicionales) con truncamiento en Tobit:

Conditional marginal effects Number of obs = 3,328

Model VCE: OIM

Expression: E(ambexp|ambexp>0), predict(e(0,.))

dy/dx wrt: age female educ blhisp totchr ins

At: age = 4.056881 (mean)

female = .5084135 (mean)

educ = 13.40565 (mean)

blhisp = .3085938 (mean)

totchr = .4831731 (mean)

ins = .3650841 (mean)

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

age | 145.524 19.7808 7.36 0.000 106.7543 184.2936

female | 317.3113 42.99069 7.38 0.000 233.0511 401.5716

educ | 32.82734 8.601086 3.82 0.000 15.96952 49.68516

blhisp | -245.658 48.29427 -5.09 0.000 -340.313 -151.0029

totchr | 576.5307 28.50492 20.23 0.000 520.6621 632.3993

ins | -77.57842 44.7012 -1.74 0.083 -165.1912 10.03432

------------------------------------------------------------------------------

**(c)** *Computar los efectos marginales haciendo las cuentas con los comandos de escalares y matrices de Stata.*

Stata.

**(d)** *Considerar la variable dependiente en logaritmos. ¿Qué interpretación tiene esto sobre la variable dependiente? ¿Qué complicaciones introduce en el análisis? Estimar un Tobit para el logaritmo de ambexp.*

La variable dependiente en logaritmos introduce dos complicaciones en el análisis: un umbral distinto de cero y una variable dependiente lognormal.

OLS (con variable dependiente en logaritmos):

Source | SS df MS Number of obs = 3,328

-------------+---------------------------------- F(6, 3321) = 169.68

Model | 5772.79592 6 962.132653 Prob > F = 0.0000

Residual | 18831.0239 3,321 5.67028725 R-squared = 0.2346

-------------+---------------------------------- Adj R-squared = 0.2332

Total | 24603.8199 3,327 7.39519683 Root MSE = 2.3812

------------------------------------------------------------------------------

lambexp | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

age | .3247317 .038348 8.47 0.000 .2495436 .3999199

female | 1.144695 .0833418 13.73 0.000 .9812886 1.308102

educ | .114108 .0165414 6.90 0.000 .0816757 .1465403

blhisp | -.7341754 .0928854 -7.90 0.000 -.9162938 -.5520571

totchr | 1.059395 .0553699 19.13 0.000 .9508324 1.167958

ins | .2078343 .0869061 2.39 0.017 .0374394 .3782293

\_cons | 1.728764 .2812597 6.15 0.000 1.177304 2.280224

------------------------------------------------------------------------------

Tobit (con variable dependiente en logaritmos):

Tobit regression Number of obs = 3,328

Uncensored = 2,802

Limits: Lower = -0.00 Left-censored = 526

Upper = +inf Right-censored = 0

LR chi2(6) = 831.03

Prob > chi2 = 0.0000

Log likelihood = -7494.29 Pseudo R2 = 0.0525

--------------------------------------------------------------------------------

lambexp | Coefficient Std. err. t P>|t| [95% conf. interval]

---------------+----------------------------------------------------------------

age | .3630699 .0453222 8.01 0.000 .2742077 .4519321

female | 1.341809 .0986074 13.61 0.000 1.148471 1.535146

educ | .138446 .0196568 7.04 0.000 .0999054 .1769866

blhisp | -.8731611 .1102504 -7.92 0.000 -1.089327 -.6569955

totchr | 1.161268 .0649655 17.88 0.000 1.033891 1.288644

ins | .2612202 .102613 2.55 0.011 .0600292 .4624112

\_cons | .9237178 .3350343 2.76 0.006 .2668233 1.580612

---------------+----------------------------------------------------------------

var(e.lambexp)| 7.735265 .2181984 7.319064 8.175133

--------------------------------------------------------------------------------

Tabla comparativa:

--------------------------------------------

(1) (2)

OLS (log) Tobit (log)

--------------------------------------------

main

age 0.325\*\*\* 0.363\*\*\*

(0.0383) (0.0453)

female 1.145\*\*\* 1.342\*\*\*

(0.0833) (0.0986)

educ 0.114\*\*\* 0.138\*\*\*

(0.0165) (0.0197)

blhisp -0.734\*\*\* -0.873\*\*\*

(0.0929) (0.110)

totchr 1.059\*\*\* 1.161\*\*\*

(0.0554) (0.0650)

ins 0.208\*\* 0.261\*\*

(0.0869) (0.103)

\_cons 1.729\*\*\* 0.924\*\*\*

(0.281) (0.335)

--------------------------------------------

/

var(e.lamb~) 7.735\*\*\*

(0.218)

--------------------------------------------

N 3328 3328

R-sq 0.235

pseudo R-sq 0.053

--------------------------------------------

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Ejercicio 3: Variables Censuradas (Modelo Tobit III).**

*Considerar la base de datos “mroz.dta”, que posee datos que permiten estudiar la oferta laboral anual de mujeres casadas. Considerar las horas trabajadas, hours, y las explicativas nwifeinc, educ, exper, expersq, age, kidslt6, kidsge6. Estimar un modelo lineal y un modelo Tobit. Comparar. Computar los efectos marginales.*

OLS:

Source | SS df MS Number of obs = 753

-------------+---------------------------------- F(7, 745) = 38.50

Model | 151647606 7 21663943.7 Prob > F = 0.0000

Residual | 419262118 745 562767.944 R-squared = 0.2656

-------------+---------------------------------- Adj R-squared = 0.2587

Total | 570909724 752 759188.463 Root MSE = 750.18

------------------------------------------------------------------------------

hours | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -442.0899 58.8466 -7.51 0.000 -557.6148 -326.565

kidsge6 | -32.77923 23.17622 -1.41 0.158 -78.2777 12.71924

age | -30.51163 4.363868 -6.99 0.000 -39.07858 -21.94469

educ | 28.76112 12.95459 2.22 0.027 3.329283 54.19297

exper | 65.67251 9.962983 6.59 0.000 46.11365 85.23138

nwifeinc | -3.446636 2.544 -1.35 0.176 -8.440898 1.547626

expersq | -.7004939 .3245501 -2.16 0.031 -1.337635 -.0633524

\_cons | 1330.482 270.7846 4.91 0.000 798.8906 1862.074

------------------------------------------------------------------------------

Tobit:

Tobit regression Number of obs = 753

Uncensored = 428

Limits: Lower = 0 Left-censored = 325

Upper = +inf Right-censored = 0

LR chi2(7) = 271.59

Prob > chi2 = 0.0000

Log likelihood = -3819.0946 Pseudo R2 = 0.0343

------------------------------------------------------------------------------

hours | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -894.0202 111.8777 -7.99 0.000 -1113.653 -674.3875

kidsge6 | -16.21805 38.6413 -0.42 0.675 -92.07668 59.64057

age | -54.40491 7.418483 -7.33 0.000 -68.9685 -39.84133

educ | 80.64541 21.58318 3.74 0.000 38.27441 123.0164

exper | 131.564 17.27935 7.61 0.000 97.64211 165.486

nwifeinc | -8.814226 4.459089 -1.98 0.048 -17.56808 -.0603706

expersq | -1.864153 .5376606 -3.47 0.001 -2.919661 -.8086455

\_cons | 965.3068 446.4351 2.16 0.031 88.88827 1841.725

-------------+----------------------------------------------------------------

var(e.hours)| 1258927 93304.48 1088458 1456093

------------------------------------------------------------------------------

Tabla comparativa:

--------------------------------------------

(1) (2)

OLS Tobit

--------------------------------------------

main

kidslt6 -442.1\*\*\* -894.0\*\*\*

(58.85) (111.9)

kidsge6 -32.78 -16.22

(23.18) (38.64)

age -30.51\*\*\* -54.40\*\*\*

(4.364) (7.418)

educ 28.76\*\* 80.65\*\*\*

(12.95) (21.58)

exper 65.67\*\*\* 131.6\*\*\*

(9.963) (17.28)

nwifeinc -3.447 -8.814\*\*

(2.544) (4.459)

expersq -0.700\*\* -1.864\*\*\*

(0.325) (0.538)

\_cons 1330.5\*\*\* 965.3\*\*

(270.8) (446.4)

--------------------------------------------

/

var(e.hours) 1258926.8\*\*\*

(93304.5)

--------------------------------------------

N 753 753

R-sq 0.266

pseudo R-sq 0.034

--------------------------------------------

Standard errors in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Efectos marginales (promedio) con censura en Tobit:

Average marginal effects Number of obs = 753

Model VCE: OIM

Expression: E(hours\*|hours>0), predict(ystar(0,.))

dy/dx wrt: kidslt6 kidsge6 age educ exper nwifeinc expersq

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -526.2776 64.70619 -8.13 0.000 -653.0994 -399.4558

kidsge6 | -9.546986 22.75224 -0.42 0.675 -54.14056 35.04659

age | -32.02622 4.29211 -7.46 0.000 -40.4386 -23.61384

educ | 47.47306 12.6214 3.76 0.000 22.73558 72.21054

exper | 77.44703 9.99765 7.75 0.000 57.85199 97.04206

nwifeinc | -5.188619 2.621409 -1.98 0.048 -10.32649 -.0507514

expersq | -1.09736 .3155945 -3.48 0.001 -1.715914 -.4788063

------------------------------------------------------------------------------

Efectos marginales (promedio) con truncamiento en Tobit:

Average marginal effects Number of obs = 753

Model VCE: OIM

Expression: E(hours|hours>0), predict(e(0,.))

dy/dx wrt: kidslt6 kidsge6 age educ exper nwifeinc expersq

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -402.5505 50.74874 -7.93 0.000 -502.0162 -303.0848

kidsge6 | -7.302504 17.40426 -0.42 0.675 -41.41423 26.80922

age | -24.4969 3.362491 -7.29 0.000 -31.08726 -17.90654

educ | 36.31221 9.703035 3.74 0.000 17.29461 55.32981

exper | 59.23934 7.83368 7.56 0.000 43.88561 74.59308

nwifeinc | -3.968782 2.007582 -1.98 0.048 -7.903569 -.0339945

expersq | -.8393724 .2423183 -3.46 0.001 -1.314307 -.3644373

------------------------------------------------------------------------------

Efectos marginales (condicionales) con censura en Tobit:

Conditional marginal effects Number of obs = 753

Model VCE: OIM

Expression: E(hours\*|hours>0), predict(ystar(0,.))

dy/dx wrt: kidslt6 kidsge6 age educ exper nwifeinc expersq

At: kidslt6 = .2377158 (mean)

kidsge6 = 1.353254 (mean)

age = 42.53785 (mean)

educ = 12.28685 (mean)

exper = 10.63081 (mean)

nwifeinc = 20.12896 (mean)

expersq = 178.0385 (mean)

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -540.2567 66.62387 -8.11 0.000 -670.8371 -409.6763

kidsge6 | -9.800576 23.36132 -0.42 0.675 -55.58792 35.98677

age | -32.87691 4.457699 -7.38 0.000 -41.61384 -24.13998

educ | 48.73405 12.9634 3.76 0.000 23.32625 74.14185

exper | 79.50419 10.30495 7.72 0.000 59.30685 99.70153

nwifeinc | -5.32644 2.690724 -1.98 0.048 -10.60016 -.0527175

expersq | -1.126508 .3232603 -3.48 0.000 -1.760087 -.49293

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Efectos marginales (condicionales) con truncamiento en Tobit:

Conditional marginal effects Number of obs = 753

Model VCE: OIM

Expression: E(hours|hours>0), predict(e(0,.))

dy/dx wrt: kidslt6 kidsge6 age educ exper nwifeinc expersq

At: kidslt6 = .2377158 (mean)

kidsge6 = 1.353254 (mean)

age = 42.53785 (mean)

educ = 12.28685 (mean)

exper = 10.63081 (mean)

nwifeinc = 20.12896 (mean)

expersq = 178.0385 (mean)

------------------------------------------------------------------------------

| Delta-method

| dy/dx std. err. z P>|z| [95% conf. interval]

-------------+----------------------------------------------------------------

kidslt6 | -379.9678 46.79714 -8.12 0.000 -471.6885 -288.2471

kidsge6 | -6.892841 16.42951 -0.42 0.675 -39.09409 25.3084

age | -23.12265 3.130037 -7.39 0.000 -29.25741 -16.98789

educ | 34.27513 9.117076 3.76 0.000 16.40599 52.14427

exper | 55.91608 7.239109 7.72 0.000 41.72769 70.10447

nwifeinc | -3.746137 1.89236 -1.98 0.048 -7.455095 -.03718

expersq | -.7922845 .2273444 -3.48 0.000 -1.237871 -.3466976

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